REMARKS/ARGUMENTS

This is a preliminary amendment in a RCE Application.

The Office Action mailed 10/29/2003 has been carefully reviewed. Reconsideration of this application, as amended and in view of the following remarks, is respectfully requested. Claims 10-35 were subject to a restriction requirement in the Office Action mailed 05/15/2002 as being directed to a non-elected invention(s). Claims 10-35 stand withdrawn from consideration in this application. The claims presented for examination in this application are: claims 1-9 and 36-43.

35 U.S.C. 112, first paragraph, Rejection in Paragraph 13 of Office Action

In numbered paragraph 13 of the Office Action mailed 10/29/2003, claims 1-9, and 36-40 were rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which, allegedly, was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the at the time the application was filed, had possession of the claimed invention. The specific rejection was stated as follows:

> "The presently claimed method recites a method for pathogen detection for a biological sample. The instant claim 1 briefly recites the method steps of providing optically encoded microbeads wherein the microbeads contained either capture specific antibodies; containing the optically encoded microbeads; adding a sample to the contained microbeads; placing the contained microbeads and sample in a mixing holder for sufficient time for the targeted biological sample to adequately bind the microbeads; adding fluorescent labeled antibodies to the contained microbeads and sample for attachment to the bioagent-specific antibodies; attaching the microbeads to a disposable capture substrate; washing the substrate and attached microbeads; inserting the substrate into an optical detection system; and optically decoding the microbeads for identification and measurement of the targeted biological sample.
>
> The method step recitation of '*adding fluorescent labeled antibodies to the contained microbeads and sample for attachment to the bioagent-specific*

antibodies (*e.g.* the fluorescent labeled antibodies is attached to the bioagent-specific antibodies) claimed in claim 1, has no clear support in the specification and the claims as originally filed. The specification in page 11, paragraph and figures 4-6 disclosed the method step of *'The fluorescent reporter labeled antibodies are added to cuvet that attach to the microbead bound sample'* (lines 8-10) the fluorescent labeled antibodies is attached to the "sample" (targeted biological sample)) is not support for *'adding fluorescent labeled antibodies to the contained microbeads and sample for attachment to the antibodies'*. Figures 4-5 disclose that the sample (targeted biological sample) is attached to the microbeads via the bioagent-specific antibodies (see figure 4), and the fluorescent labeled antibodies is attached to the sample. Because the narrow limitation of the specification recites that the fluorescent reporter labeled antibodies are attached to the sample, it does not support the limitation of the claim, which recites that the fluorescent labeled antibodies are attached to the bioagent-specific antibodies. Therefore, the scope of the invention as originally disclosed in the specification would not encompass the scope of the limitation that the fluorescent labeled antibodies are attached to the bioagent-specific antibodies.

If applicants disagree, applicant should present a detailed analysis as to why the claimed subject matter has clear support in the specification."

Applicants Response to the Paragraph 13, 35 U.S.C. 112 Rejection

Applicants disagree and are presenting the following detailed analysis showing that the subject matter of claims 1-9, and 36-40 has clear support in the application as originally filed.

The original patent drawings, particularly Figure 6, show that the "fluorescent labeled antibodies" attach to the "bioagent-specific antibodies." Figure 6 from the original patent drawings is set below.

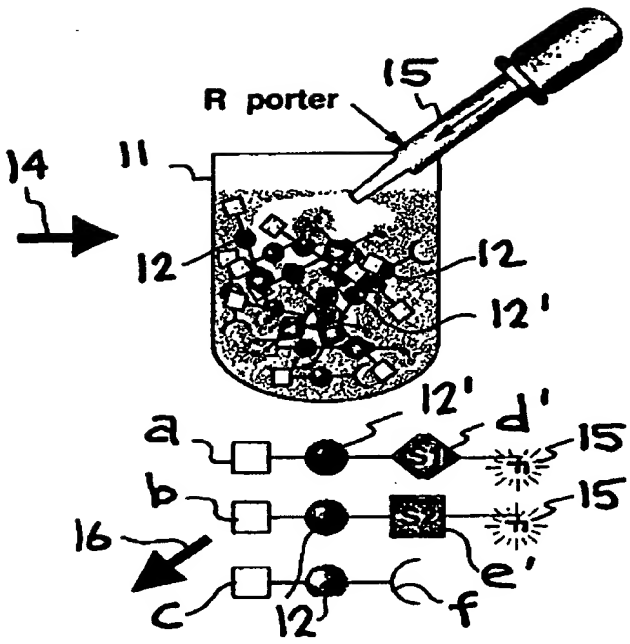


FIG. 6

The "fluorescent labeled antibodies" are identified by the reference numeral 15. The "bioagent-specific antibodies" are identified by reference letters d', e', and f. The "sample" is identified by the reference numeral 12. Note that fluorescent labeled antibody 15 is attached to bioagent-specific antibody d' which is in turn attached to sample 12'. Note also that fluorescent labeled antibody 15 is attached to bioagent-specific antibody e' which is in turn attached to sample 12.

Applicants submit that the application as originally filed contains support for the element of claims 1-9, and 36-40, "adding fluorescent labeled antibodies to the contained microbeads and sample for attachment to the bioagent-specific antibodies" and the rejection of claims 1-9, and 36-40 should be withdrawn.

Applicants believe they have provided a full and complete response to the 35 U.S.C. 112 Rejection in numbered paragraph 13 of the Office Action mailed 10/29/2003.

35 U.S.C. 112, first paragraph, Rejection in Paragraph 14 of Office Action

In numbered paragraph 14 of the Office Action mailed 10/29/2003, claims

41-43 were rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which, allegedly, was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the at the time the application was filed, had possession of the claimed invention. The specific rejection was stated as follows:

> "The presently claimed method recites a method for pathogen detection for biological molecule. The instant claim 41 briefly recites the method steps of providing optically encoded microbeads; adding the capture ligand to the microbeads; adding the bioagent-specific antibodies to the microbeads; containing the microbeads; adding a sample to the contained microbeads; adding fluorescent labeled antibodies for attachment to the bioagent specific antibodies; providing a disposable capture substrate; inserting the disposable capture substrate into the contained microbeads for capturing the microbeads; washing the substrate and attached microbeads; inserting the substrate into an optical detection system; optically decoding the microbeads for identification and measurement of the biological molecules attached to the microbeads.
>
> The method step recitation of *'adding fluorescent labeled antibodies-for attachment to the bioagent specific antibodies'* (e.g. the fluorescent labeled antibodies is attached to the bioagent-specific antibodies) claimed in claim 1, has no clear support in the specification and the claims as originally filed. The specification in page 11, paragraph [0038], and figures 4-6 disclosed the method step of 'The fluorescent *reporter labeled antibodies are added to that attach to the microbead bound sample'* (lines 8-10) (e.g. the fluorescent labeled antibodies is attached to the "sample" (targeted biological sample)) is not support for *'adding fluorescent labeled antibodies for attachment to the bioagent-specific antibodies'*. Figures 4-5 disclose that the sample (targeted biological sample) is attached to the microbeads via the bioagent-specific antibodies (see figure 5), and the fluorescent labeled antibodies is attached to the sample (see figure 6). Because the limitation of the specification recites that the fluorescent reporter labeled antibodies are attached to the sample, it does not support the limitation of the claim, which recites that the fluorescent labeled antibodies are attached to the bioagent-specific antibodies. Therefore, the invention as originally disclosed in the specification would not encompass the claimed limitation that the fluorescent labeled antibodies are attached to the bioagent-specific antibodies.
>
> If applicants disagree, applicant should present a detailed analysis as to why the claimed subject matter has clear support in the specification."

Applicants Response to the Paragraph 14, 35 U.S.C. 112 Rejection

Applicants disagree and are presenting the following detailed analysis as to why the subject matter of claims 41-43 has clear support in the application as originally filed.

The original patent drawings, particularly Figure 6, show that the fluorescent labeled antibodies attach to the bioagent-specific antibodies. Figure 6 from the original patent drawings is set below.

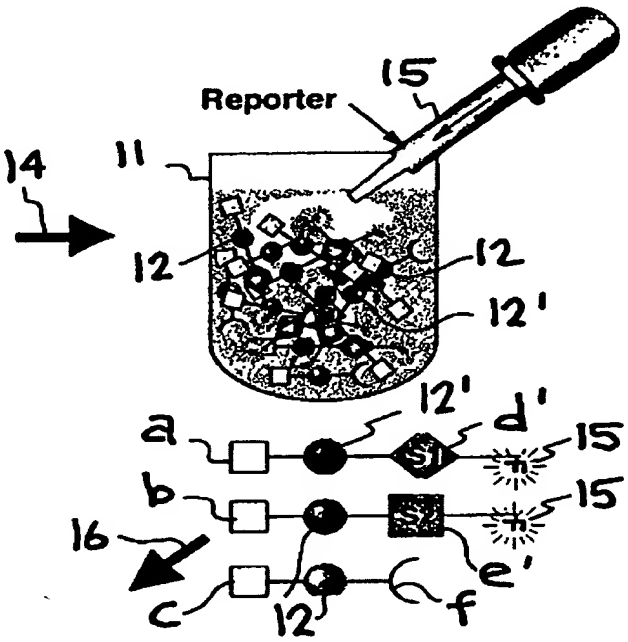


FIG. 6

The "fluorescent labeled antibodies" are identified by the reference numeral 15. The "bioagent-specific antibodies" are identified by reference letters d', e', and f. The "sample" is identified by the reference numeral 12. Note that fluorescent labeled antibody 15 is attached to bioagent-specific antibody d' which is in turn attached to sample 12'. Note also that fluorescent labeled antibody 15 is attached to bioagent-specific antibody e' which is in turn attached to sample 12.

Applicants submit that the application as originally filed contains support for the element of claims 41-43, "adding fluorescent labeled antibodies for attachment to the bioagent specific antibodies" and the rejection of claims 41-43 should be withdrawn.

Applicants believe they have provided a full and complete response to the 35 U.S.C. 112 Rejection in numbered paragraph 14 of the Office Action mailed 10/29/2003.

35 U.S.C. 112, first paragraph, Rejection in Paragraph 15 of Office Action

In numbered paragraph 15 of the Office Action mailed 10/29/2003, claim 7 was rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which, allegedly, was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the at the time the application was filed, had possession of the claimed invention. The specific rejection was stated as follows:

> "The instant claim 7 briefly recites the method step *"wherein said step of containing said microbeads is carried out by placing said microbeads in a disposable bead pack."*
>
> The recitation of *'wherein said step* of containing said microbeads is carried out by *placing said microbeads in a disposable bead pack'* claimed in claim 7, have no clear support in the specification and the claims as originally filed. The specification in page 11, paragraph [0038] disclosed *'sample is added to a cuvet containing optically encoded microbeads'* (lines 2-3) is not support for *'wherein said step of containing said microbeads is carried out by placing said microbeads in a disposable bead pack'*. Because the specification recites that the method is performed by containing the microbeads in a cuvet, it does not support the claimed limitation of the claim 7, which recites that the method is performed by containing the microbeads in a disposable bead pack. Therefore, the invention as originally disclosed in the specification would not encompass the claimed limitation of claim 7 of method step *"wherein said step of containing said microbeads is carried out by placing said microbeads in a disposable beadpack."*
>
> If applicants disagree, applicant should present a detailed analysis as to why the claimed subject matter has clear support in the specification."

Applicants Response to the Paragraph 15, 35 U.S.C. 112 Rejection

Applicants disagree and are presenting the following detailed analysis showing that the subject matter of claim 7 has clear support in the application as originally filed.

The application as originally filed included an embodiment of the invention illustrated in Figures 4, 5, and 6 wherein the microbeads are contained in a curvet 12. The application as originally filed also included an embodiment of the invention illustrated in Figures 8 and 9 wherein the microbeads are contained in a bead pack 23.

The original specification, in paragraph [0039], included the following specific descriptions of the bead pack 23 shown in Figures 8 and 9: ".....As shown, the portable pathogen detection system of Figures 8 and 9 is a handheld device and comprises a casing or housing 20 which can be held in a human hand 21, the housing 20 including a plurality of mixing chambers 22 within which bead packs 23, see Figure 9, are located within a vibration or mixing unit 24, an opening 25 within which is located one or more disposable capture substrates 26 for storage purposes prior to insertion thereof into a bead pack 23, ..."

Applicants submit that the application as originally filed contains support for the element of claim 7, "wherein said step of containing said microbeads is carried out by placing said microbeads in a disposable bead pack" and the rejection of claim 7 should be withdrawn.

Applicants believe they have provided a full and complete response to the 35 U.S.C. 112 Rejection in numbered paragraph 15 of the Office Action mailed 10/29/2003.

35 U.S.C. 112, second paragraph, Rejection in Paragraph 17 of Office Action

In numbered paragraph 17 of the Office Action mailed 10/29/2003, claims 1-9, and 36-43 were rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The specific rejection was stated as follows:

a. Claim 1 is vague and indefinite with regard to the correlation between "pathogen detection" and "targeted biological sample." The term "targeted biological sample" would encompass the term "pathogen."

b. Claim 1 is vague and indefinite with regard to the correlation between the method step of "optically decoding said microbeads for identification and measurement of said targeted biological sample" and the "method for pathogen detection for a targeted biological sample."

c. Claim 1 is vague and indefinite with regard to the relationship of the "capture ligand" with regard to the "targeted biological sample", and the "substrate."

d. The method steps of providing a multiplicity of optically encoded microbeads; providing said microbeads with a capture ligand; and providing said microbeads with bioagent-specific antibodies of claim 1 are vague and indefinite. It is unclear whether the microbeads are optically encoded and have either capture ligand bioagent-specific antibodies or that there is a mixture of microbeads wherein the mixture of microbeads comprise of microbeads that are optically encoded, microbeads that has capture ligand, and microbeads that has bioagent-specific antibodies.

e. It is unclear as to the relationship between "capture ligand" and "bioagent-specific antibodies" of claim 1. The term "capture ligand" is synonymous with the "bioagent-specific antibodies."

f. Claim 8 is vague and indefinite because it does not further limit claim 1. The claimed method steps of claim 8 are redundant with the claimed method steps of claim 1. For example, claim 8 claimed a limitation of additionally including the step of an assay, but the method of claim 1 is an assay.

g. Claim 9 is vague and indefinite because it does not further limit claim 1. 'The claimed step of processing of claim 9 is the summation of the claimed method steps of claim 1.

h. Claim 41 is vague and indefinite with regard to the correlation between 'pathogen detection" and "biological molecules." The term "biological molecules" would encompass the term "pathogen."

i. Claim 41 is vague and indefinite with regard to the correlation between method step of "optically decoding said microbeads for identification and measurement of said biological molecules attached to said microbeads" and the "method for pathogen detection for a targeted biological sample."

Applicants Response to the Paragraph 17, 35 U.S.C. 112 Rejection

Applicants have made various amendments to the claims and believe that amended claims 1-9, and 36-43 comply with the requirements of 35 U.S.C. 112, second paragraph. Applicants respond to each portion of the paragraph 17 rejection in the Office Action mailed 10/29/2003 as follows:

a. Claim 1 has been amended to remove the word "pathogen" from the preamble and there is now no conflict with the term "targeted biological sample."

b. Claim 1 has been amended to add the term "and measurement" providing correlation in the "detection and measurement of the targeted biological sample."

c. The terms, "capture ligand," "targeted biological sample," and "substrate" recited in claim 1 are fully described in Applicants' specification and the relationship of the terms is also described in the specification as it is in claim 1.

d. The method steps, "providing a multiplicity of optically encoded microbeads," "providing said microbeads with a capture ligand," and "providing said microbeads with bioagent-specific antibodies" of claim 1 are fully described in Applicants' specification and the relationship of the terms is also described in the specification as it is in claim 1.

e. The terms, "capture ligand" and "bioagent-specific antibodies" recited in claim 1 are fully described in Applicants' specification and the relationship of the terms is also described in the specification as it is in claim 1.

f. Claim 8 has been amended to clarify there are specific additional steps.

g. Claim 9 has been cancelled.

h. Claim 41 has been amended to remove the word "pathogen" from the preamble and there is now no conflict with the term "biological molecules."

i. Claim 41 has been amended to add the term "and measurement" providing correlation in the "detection and measurement of biological molecules."

Applicants believe they have provided a full and complete response to the 35 U.S.C. 112 Rejection in numbered paragraph 17 of the Office Action mailed 10/29/2003.

35 U.S.C. 102 Rejection in Paragraph 8 of Office Action

In numbered paragraph 8 of the Office Action mailed 10/29/2003, claims 1-3, 5-6, 36, and 40 were rejected under 35 U.S.C. 102 as allegedly being anticipated by the Pyle et al. Reference (United States Patent No. 5,821,066).

Applicants respectfully submit that the Pyle et al. Reference does not have the claimed steps of the invention defined by amended claims 1-3, 5-6, 36, and 40 presented for examination. The Pyle et al. Reference shows, "rapid method for the detection, identification and enumeration of specific respiring microorganisms. The method includes steps of a) passing a microbial sample through a collecting device to capture the cells; b) adding to the collecting device a fluorochrome dye specific for the detection of respiring cells and allowing the dye to incubate; c) treating the collecting device with a reactive fluorescent antibody which reacts with a target microorganism of interest present in said microbial sample; d) mounting the collecting device for examination by fluorescence microscopy in which a suitable light system is used to excite the fluorochrome dye and fluorescent antibody to fluoresce; and e) quantifying the respiring cells. Alternative embodiments include the use of immunomagnetic beads and other means of cell capture, and employing fluorescent

oligonucleotide probes rather than fluorescent antibodies." (Pyle et al. Reference Abstract)

The Pyle et al. Reference does not show the following steps of the claims presented for examination: "providing a multiplicity of optically encoded microbeads" or "providing a quantity of optically encoded microbeads" or "optically decoding said microbeads for detection and measurement of the targeted biological sample," or "optically decoding said microbeads for identification and measurement of the biological molecules attached to said microbeads."

Instead the Pyle et al. Reference uses the following steps: "(a) mixing immunomagnetic beads comprising an antibody which specifically binds to a target bacteria with a liquid sample comprising said target bacteria" and "(c) placing the sample in a magnetic separator which causes the magnetic beads to which target bacteria have attached to separate from the liquid sample." (See Pyle et al., Abstract, and Col. 6, lines 44-45, and Col 12, lines 46-53, and drawings Figure 2)

Also, the Pyle et al. Reference does not show the steps of the claims presented for examination: "adding fluorescent labeled antibodies to said contained microbeads and said sample for attachment to said bioagent-specific antibodies," or "attaching at least some of said microbeads to a disposable capture substrate containing an array of attachment sites for attaching said microbeads thereto," or "inserting said substrate into an optical detection system."

As stated in Verdegaal Bros. v. Union Oil Co. of California, 814 F.2nd 628, 631 USPQ 1051, 1053 (Fed. Cir. 1987), "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." Since various steps of amended claims

1-3, 5-6, 36, and 40 are not shown by the Pyle et al. Reference, the rejection is unsupported by the art and should be withdrawn.

Applicants believe they have provided a full and complete response to the rejection of claims 1-3, 5-6, 36, and 40 under 35 USC 102 stated in numbered paragraph 8 of the Office Action mailed 10/29/2003.

35 U.S.C. 103 Rejection in Paragraph 10 of Office Action

In numbered paragraph 10 of the Office Action mailed 10/29/2003, claims 41-43 were rejected under 35 U.S.C. 103 as allegedly being unpatentable over the primary reference, Pyle et al. (United States Patent No. 5,821,06,6), and the secondary reference, Nazareth et al. (United States Patent No. 6,319,676).

As explained above in connection with the 35 USC 102 rejection, the primary reference, Pyle et al., does not show the following steps of the claims 41-43 presented for examination:

"providing a quantity of optically encoded microbeads," or

"adding fluorescent labeled antibodies for attachment to said bioagent specific antibodies," or

"providing a disposable capture substrate containing an array of attachment sites for attaching said microbeads thereto," or

inserting said disposable capture substrate containing an array of attachment sites into said contained microbeads for capturing said microbeads, or

"inserting said disposable capture substrate into a detection system," or

"optically decoding said microbeads for identification and measurement of the biological molecules attached to said microbeads."

The secondary reference, Nazareth et al., also fails to show the steps enumerated above.

Since neither the primary reference nor the secondary reference show the missing steps, a combination of the primary and secondary reference also does not show the missing steps or the invention of the rejected claims 41-43.

Under MPEP §2142, there are three requirements to establish a prima facie case of obviousness. (1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. (2) There must be a reasonable expectation of success. (3) The prior art reference (or references when combined) must teach or suggest all the claim limitations. It should be noted that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants respectfully submit that the rejection fails under the obviousness test. There is no suggestion or motivation in the prior art to combine the primary Pyle et al. reference and the secondary Nazareth et al. reference. Under MPEP §2143.01, "obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art." In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Applicants respectfully submit that the rejection also fails under the obviousness test because only through impermissible hindsight would there be any reason to combine the Pyle et al. reference and the Nazareth et al. reference. MPEP §2142 states "the tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination

process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." Also, under MPEP §2143.01, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

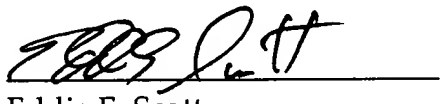
Since there is no teaching to combine the primary Pyle et al. reference and the secondary Naareth et al. reference, the 35 USC 103 rejection is unsupported and should be withdrawn.

Applicants believe they have provided a full and complete response to the rejection of claims 41-43 under 35 USC 103 stated in numbered paragraph 10 of the Office Action mailed 10/29/2003.

SUMMARY

The undersigned respectfully submits that, in view of the foregoing amendments and the foregoing remarks, the rejections of the claims raised in the Office Action dated 10/29/2003 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,



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Livermore, California
Dated: January 26, 2004